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SCHOOL CONSTRUCTION

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REPORT NO. 48
To the 43rd Legislative Assembly

MONTANA LEGISLATIVE COUNCIL
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SCHOOL CONSTRUCTION

TABLE OF CONTENTS

RECOMMENDATIONS. iii

SCOPE OF STUDY 1

STUDY PROCEDURES 1

PART I
UNIFORM CONSTRUCTION PLANS 3
Summary 3
Conclusion 4

THE CASE FOR AND AGAINST STOCK PLANS 5
Major Points of Proponents 5
Summary 7
Arguments Against Uniform Plans 7
Summary 9

USE OF UNIFORM SCHOOL CONSTRUCTION PLANS IN OTHER STATES 9
Experience of States Using Uniform Plans 9
Experience of Selected States Having Tried and Abandoned Uniform Plans 10
Conclusion 12

PART II
THE SCHOOL CONSTRUCTION PROCESS IN MONTANA 14
Summary 14

ALTERNATIVES TO THE USE OF UNIFORM BUILDING PLANS 16
"Turnkey" Construction 16
"Fast-Track" Construction 16
Systems Approach 16
Use of Non-School Building Space 17
Joint Occupancy 17
Partnerships 17
Multi-District Cooperation 18

THE IMPORTANCE OF PRE-PLANNING 18

THE SUPERVISION OF PUBLIC SCHOOL CONSTRUCTION 21

STATE REVIEW OF PUBLIC SCHOOL CONSTRUCTION PLANS 23

OTHER STATUTORY PROVISIONS AFFECTING PUBLIC SCHOOL CONSTRUCTION 25
State Building Code Council 25
Public Contract Requirements 27
Professional Liability Insurance 28

APPENDICES

APPENDIX A 31
APPENDIX B 33
APPENDIX C 37
APPENDIX D 41
APPENDIX E 43

TABLES

TABLE 1 12
TABLE 2 28

RECOMMENDATIONS

The Montana Legislative Council recommends:

1. *That the Superintendent of Public Instruction investigate means of providing an educational consultant service to elementary and secondary school districts in Montana. Such investigation should include determinations as to how this construction planning service could be incorporated within the present organization of the Office of Superintendent of Public Instruction as well as whether or not such a service could be self-supporting.*

2. *That the 43rd Legislative Assembly instruct the Department of Administration to devise a method of independent, full-time inspection of Montana's public school construction and other municipal construction projects.*

3. *That the responsibility for review of elementary and secondary school construction plans be centralized within the Architecture and Engineering Division of the State Department of Administration.*

That statutes be amended deleting the State Fire Marshal, the Superintendent of Public Instruction and Board of Health's responsibilities in this area.

4. *That the organization and function of the Building Code Council be retained organizationally within the State Department of Administration.*

5. *That all Montana codes dealing with the bidding, bonding, and plan reviews of public works projects constructed within the state be substantively recodified.*

6. *That all classes of school districts be allowed to enter into contracts in amounts not exceeding $4,000 without first obtaining formal advertised bids.*

7. *That Section 66-114, R.C.M. 1947, be amended to require that all architects and engineers carry professional liability insurance when performing services on any state construction project. The terms and amounts of such liability coverage is to be determined by the State Department of Administration.*

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SCOPE OF STUDY

House Joint Resolution No. 50 directed the Legislative Council to study the feasibility of and potential cost savings in the establishment of a set of standard statewide plans for the construction of elementary and secondary school buildings in Montana that would be adaptable to various size requirements and suitable for various size communities. The clauses preceding this directive noted inflationary pressures and increasing demands upon education as necessitating the study of innovative means to provide high-quality educational facilities at the least cost to taxpayers.

In undertaking this study, the Legislative Council attempted to adhere to both the letter and the spirit of House Joint Resolution No. 50. The primary directive, that of examining the feasibility of adopting standard statewide school plans, is covered in Part I of this report. Part II is a discussion of other items considered by the Council concerning the more general topic of the elementary and secondary school construction process in Montana.

STUDY PROCEDURES

In conducting this study, the Council benefited from testimony representing the views of a broad range of individuals and disciplines from both the public and private sectors. Hearings were held with various persons or groups engaged in the architecture and engineering profession, as well as representatives of the contracting and building trades.

At the state government level, testimony was heard from representatives of the Architecture and Engineering Division of the Department of Administration, the Office of the State Superintendent of Public Instruction, the Department of Health and Environmental Sciences and the State Fire Marshal's office. In addition, the Council received correspondence from relevant agencies in other states.

The members of the study group, both collectively and individually, toured several large and small school districts. In the conduct of these tours, the members discussed school construction and related topics with school superintendents, principals, teachers, maintenance personnel and students. In addition, a formal hearing with school administrators from throughout the state was held in Helena.

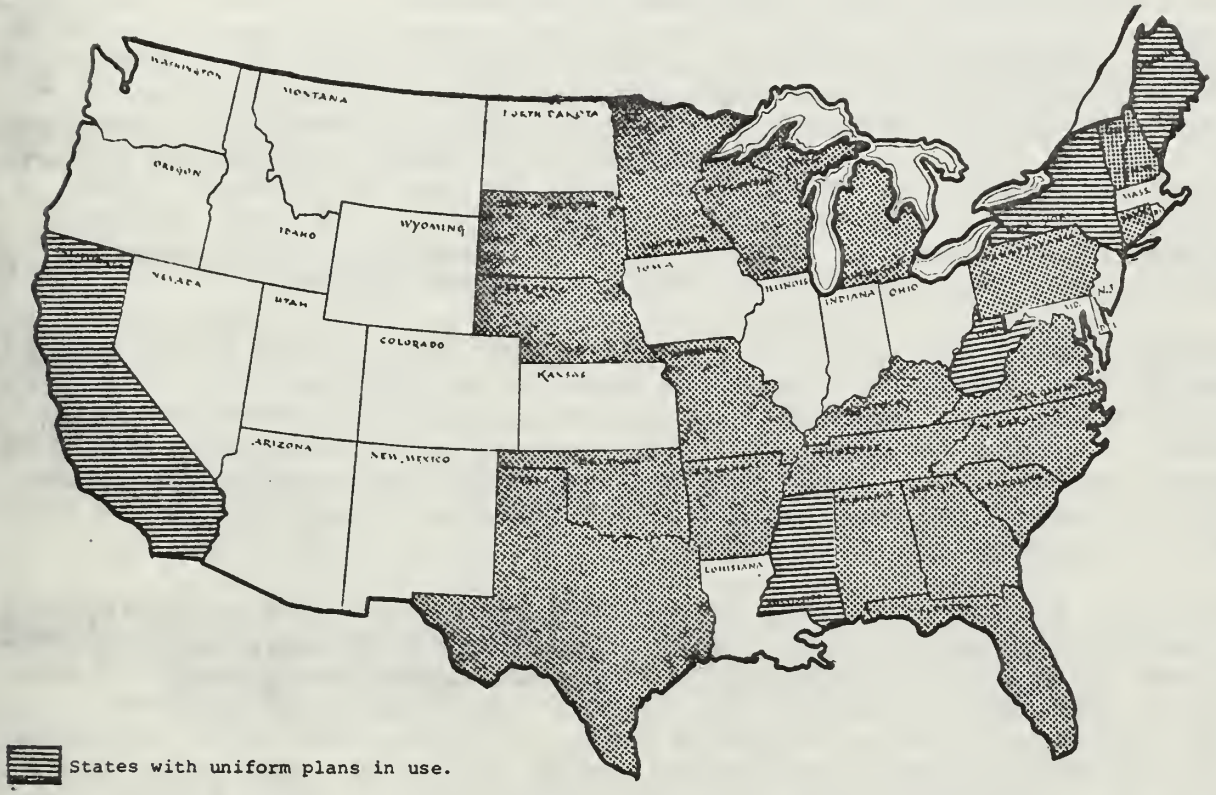
The Council wishes to especially thank Mr. Phil Hauck, Administrator, Architecture & Engineering Division; Mr. Paul O'Hare, Past President of the Montana Association of School Administrators; Mr. George LaRue, Plant Supervisor for School District #2, Billings; and Mr. William Kuhr, President of the Montana Chapter

of the American Institute of Architects, for their assistance and cooperation in the study.

PART I
UNIFORM SCHOOL CONSTRUCTION PLANS

Summary

Currently, five states are utilizing some form of uniform blueprint in the construction of elementary and secondary schools. Twenty-one states have made use of such uniform plans at some time in the past, but have subsequently either abandoned them or discontinued their use. The current status of stock plan utilization is presented below.



In addition to the states pictured above, the Washington state legislature has seen a proposal for the use of modifiable stock plans introduced in every session since 1953. During the 1969 session a bill requiring uniform school blueprints was passed by the state Senate but was defeated in the House.

Montana was not included in the above chart, even though standard plans for class "C" schools of four classrooms or less have been available on request from the Department of Health and Environmental Sciences for about fifteen years. A lack of interest in these plans has resulted in their discontinuance, as evidenced by the fact that the most current set of plans available for distribution was published in 1949.

In most of the states using or having used uniform plans, the procedure is to utilize professionals in the preparation of architectural plans, drawings and specifications by sizes of school. These plans are then made available to school districts, usually on a voluntary basis. The responsibility for preparing stock plans is most often given to the state educational agency, although in some cases very large school districts may develop their own set of blueprints.

Very little data is available regarding the costs of schools constructed using uniform plans. A study by the California legislature conducted in 1955 showed the cost of such schools to be as low as $6.85 per square foot, as against $10.75 per square foot for a custom-built school of comparable size.

The most obvious advantage of uniform plans is that they save major expenditures at the local level for architectural fees. Once the state has assumed the initial design costs for a particular type of school building, the work of local architects is limited to relatively minor items such as design changes, site selection and the supervision of construction. If kept updated, standard plans could be revised to correct design errors and incorporate new improvements in building construction.

Proponents also contend that the use of uniform plans would greatly speed up the school construction process at substantial savings to taxpayers and, in response to a pressing need for immediate educational facilities throughout the nation, advocates hold that the greater use of stock plans would facilitate mass production economies in the manufacture of building parts and greater use of assembly line building techniques.

Opposition to uniform plans for school buildings centers primarily on the educational aspects of such plans. Educators fear the loss of local initiative in determining their educational needs if the state is allowed to mandate how school buildings are designed. It is contended that no uniform plan, no matter how well designed, could incorporate the educational needs of every local district's curriculum. This objection seems common even in states where the use of stock plans is optional, as local officials are hesitant to refuse stock plans and face criticism from economy-minded civic groups.

Opponents further contend that inflexible uniform plans would prevent the incorporation of community use features which local groups might wish to design into their school buildings. Communities could not incorporate a larger auditorium, for example, into the new school in order to avoid duplicate facilities being constructed. The coordination of school and community building objectives is discussed further in Part II of this report.

Conclusion

After reviewing the history of stock school construction plans in

other states, the current state of opinion for and against their use, and the applicability of the practice in Montana, the Council concludes that the use of a set of standard statewide plans for the construction of elementary and secondary school buildings in Montana would not be feasible at the present time.

THE CASE FOR AND AGAINST STOCK PLANS

This section sets forth the published views of both proponents and opponents to the use of uniform school construction plans. Testimony heard by the Council from expert witnesses on the subject is incorporated where applicable. The Council found these arguments to be of value not only in reaching a decision on the use of stock plans, but as an aid to defining the general constraints on economical school construction which led to the passage of House Joint Resolution No. 50.

Major Points of Proponents

The proponents presented the following arguments in favor of standard plans for school buildings:

1. Time would be saved in the preparation of plans for school buildings. Once the state had contracted with highly qualified architects and engineers to develop a plan for a category of buildings, such as a ten-room elementary school, much less professional time would be spent on future projects of the same type. The work of architects at the local school level would be reduced to adapting the standard plan to a particular site.

2. The task of estimating the costs of building materials would be facilitated, as material and labor requirements would be available immediately to schools contemplating construction. This would aid local school boards in their fiscal planning.

3. On a regional or national basis, economies through mass production of building components would be possible. With more uniform plans in use, manufacturers would be encouraged to standardize their products leading to lower unit costs at the local level.

4. School bond electors would be able to look at structures already built in order to better judge what they are being asked to vote for or against.

5. Constructed schools would become standard for future construction. Any "frills" or waste would be readily noticed by comparison. Conversely, attempts by contractors or officials to cut costs below the standard would be readily apparent.

6. Local architects and engineers could be employed to adapt the uniform plan, even though they have had no previous experience in school building design. Such professionals, familiar with conditions in the area, may be better suited to adapt the plan than one who resides in another part of the state.

7. Assuming the current school equalization mandated by federal courts extends to school construction, the state could use the standardized plans as a fair basis for distributing state grants-in-aid. Similarly, established unit construction costs by type of structure could provide a basis for statutory maximums.

8. Proponents say that the main argument of opponents, that of a loss of educational considerations, is in error. Schools, particularly elementary schools, consist primarily of classrooms and bathrooms. Health and safety considerations are generally governed by state and local building codes.

9. Another opposing argument, that of monotony of design, can be overcome through the use of color on trim, doors and wall panels. In addition, landscaping may be utilized to change the overall appearance of uniformly constructed schools.

10. Errors and omissions in the standard plans which develop through experience can be corrected. Custom-built schools seldom have this benefit. Regular revisions of stock plans can be made periodically to adjust for changing educational needs and obsolescence.

11. The problem of revising plans to suit local conditions can be minimized through the use of supplemental electrical and water supply plans offered as alternatives to those contained in the stock plan.

12. The creation of a state bureaucracy to

administer the plans need not be feared, as uniform plans can be prepared by private architects contracting with state agencies. Plan revisions may be also handled privately on a per diem basis.

Summary

When unexpected shifts in enrollment occur, additional school facilities must be built. The faster these schools are built, the faster increased enrollment may be handled at the least cost to the taxpayer. Communities asked to assume heavy tax burdens for school buildings should be given the assistance afforded by standard school construction plans. If such a community is willing to pay additional costs for a more elaborate school, voluntary uniform plans would not stop it from doing so.

Arguments Against Uniform Plans

An overriding argument against the use of uniform plans is that they ignore the considerable benefits accruing to a community which plans and develops its own schools. In addition to the question of hampering community development, opponents of the idea presented the following points against using uniform school construction plans:

1. It is claimed that stock plans have an adverse effect upon a school's educational program. Local communities could not provide greater emphasis to facilities which their boards deem to be important (i.e., science labs, vo-tech facilities, etc.). This argument is carried further in that opponents hold that the use of uniform building plans would lead to an arbitrary curriculum being superimposed by the state.

2. When important decisions are made in a situation remote from the people who must live with them, there usually results the imposition of an "average" solution on the whole state. This would prevail even though uniform plans may be optional. In practice they would be considered mandatory because local officials would bear the burden of proof as to why stock plans were not used.

3. While no reliable studies have been made to compare the costs of construction using uniform versus custom plans, some communities have found that alleged savings do not occur when bids are solicited on both types of construction.

4. Opponents hold that a competent architect will usually opt for the most inexpensive construction method, regardless of its effect on his fees. Such a professional would utilize money-saving techniques such as modular design and pre-fabrication of components whenever feasible, thus reducing the need for uniform plans.

5. Flat sites, for which most uniform plans are drawn, are rarely available in many parts of Montana. If sites are not level, costly modifications and alterations of uniform plans are necessary. Opponents hold that expensive grading and leveling would be necessary in order to make the site conform to the building.

6. Opponents of uniform plans say that a sterotyped environment may have an adverse effect on student ability to learn. They claim that non-educational structures such as fire stations, city halls, police stations and hospitals provide a more reasonable application of uniform plans.

7. Opponents hold that uniform plans stifle healthy competition to find more economical means of solving school building problems. It is said that some of the most functional and economical features of modern school buildings have come about as a result of communities vying with one another in an effort to build better schools at the least cost.

8. A competent architect will supply bidders with detailed specifications and drawings setting forth exact labor and material requirements for the individual school site. Opponents say that most contractors would prefer to bid on such specifications rather than to build from a uniform plan which has been revised to fit a particular site.

9. Because of a lack of time in state administering agencies, an extensive time lag is likely before new construction developments or shortages in building materials can be compensated for in stock plans.

10. Uniformly built schools are monotonous, and aesthetically unpleasant to persons who must

view them regularly.

11. Critics claim that if uniform plans are available, local boards may rush into a building program without proper preliminary planning or justification.

12. Differences in soil composition at various sites may necessitate the complete redrafting of stock plans.

Summary

Uniform school plans promise only one real saving--that of time. Even the saving of time can result in hasty planning by local school boards. A reliance on uniform plans discounts the importance of the local planning process and shifts the responsibility for facility and educational improvements to the state level.

USE OF UNIFORM SCHOOL CONSTRUCTION PLANS IN OTHER STATES

Approximately 26 states have made some effort to reduce school building construction costs by the use of uniform building plans which are variously referred to as "uniform architectural plans," "uniform plans," "standard plans" and "stock plans." In all but five of these states, the use of such plans has been either partially or wholly abandoned. Even in those five states still maintaining a set of plans (New York, California, Maine, Mississippi and West Virginia), their use is restricted to plans for schools of four classrooms or less.

In general, the uniform plan for rural one to four classroom schools has received some degree of acceptance due to the fact that technical requirements for such facilities are relatively simple. In addition, most architectural firms are not particularly interested in such small projects, and consequently charge higher fee percentages. In Montana, while uniform plans for small rural districts have been made available through the State Department of Health, little use has been made of them in recent years.

The experience of states which have tried and abandoned the use of uniform plans varies somewhat; however, some points reported in testimony before the Council appear to be common to all. A capsule summary of each state's experience appears below.

Experience of States Using Uniform Plans

New York - Nine complete sets of plans and specifications were

prepared by private architectural firms at a cost of $500,000. A brochure was provided with each set showing floor plans and estimates of material costs. Use of the standard plans is voluntary. In the past ten years, state officials report little interest in using the plans and feel their use does not justify administrative costs.

California - Stock plans available have been used by approximately one hundred districts; however, in about one-half of these districts, modifications were made to accommodate particular sites. In some of the larger districts, such as Los Angeles and San Diego, uniform plans for one to five classrooms have been prepared by the school district's own architect for use in rural areas.

Maine - In response to a request made by the Massachusetts Legislative Research Bureau for information on the use of uniform plans, the Maine Department of Education replied that:

> "The State of Maine has a 'state plan' for one, two, three and four room buildings which may be used by municipalities. These plans or variations of the plans are used by many small communities which do not feel that they can afford the services of an architect. Savings made by using the plans are hard to estimate, as there is no actual basis for comparison."

Mississippi - Uniform plans have been in use in Mississippi for small classroom buildings, vocational facilities and cafeterias costing up to $15,000. The State Education Department reports that these plans were most often used without architectural supervision, and occasionally have resulted in inferior construction.

West Virginia - Uniform plans for one-room schools are furnished on request to local districts by the West Virginia Department of Education. There is no information immediately available as to the extent of this type of construction at the present time.

Experience of Selected States Having Tried and Abandoned Uniform Plans

Alabama - Stock plans for one- or two-classroom schools were used for many years in Alabama. It has been found that in many cases the plans had to be revised to meet local conditions and changing educational needs. As a result, the State Department of Education found that it did not have the personnel to keep the plans up to date and subsequently abandoned them.

Connecticut - Some fifty years ago Connecticut established uniform plans for one- and two-room schools for voluntary use by cities. As only two buildings were erected using the plans, the scheme was

abandoned about 1932.

Florida - Florida experimented with stock plans for special educational facilities but rapidly changing educational conditions rendered the plans obsolete.

Michigan - Prior to 1932, Michigan provided uniform plans for one- and two-room schools. This type of structure is now obsolete in all Michigan school districts.

Missouri - Uniform plans for small buildings were discontinued a number of years ago because of difficulties in obtaining adequate competitive bids on the construction work.

North Carolina - North Carolina maintained standard stock plans largely for the sake of illustrating certain economies in elementary school construction, and for the construction of specialized buildings. The use of plans was discontinued because the plans were educationally outdated and required major modification to adapt to different sites.

Pennsylvania - Between 1937 and 1947, the Pennsylvania Department of Public Instruction was directed by statute to maintain stock plans for one- to four-classroom buildings, available on request. During that ten-year period, six requests were received for one-room plans, twelve for two-room, four for three-room, and fifteen for the four-room school. Less than half of these requests resulted in completed school buildings.

Texas - A 1909 statute authorized uniform school building plans for small rural schools, but these have not been used since 1950.

Vermont - As in many other states, consolidations of school districts made stock plans for one- and two-room schools obsolete.

Conclusion

The following table shows the history of elementary and secondary school construction projects in Montana over the past three years.

TABLE 1

Montana Elementary and Secondary
School Construction Projects Authorized[1]

Fiscal Years 1969-1971

Fiscal Year	Buildings	Additions	Systems*	Total
1969	8	36	7	51
1970	5	17	8	30
1971	8	22	5	35
Totals	21	75	20	116

*Systems include sprinkler and fire detection systems, re-wirings, plumbing, ventilation and heating systems.

[1]Source: State Department of Health and Environmental Sciences, Helena.

As can be seen, an average of seven major school buildings is designed in Montana annually. The majority of projects in both elementary and secondary school plants involve additions or renovations to existing facilities. Such specialized modifications would lend themselves to standardization. In addition, even a partial set of uniform plans designed for each class of elementary and secondary district in Montana might well exceed the annual statewide demand for such facilities, regardless of whether their use was mandatory or voluntary.

Charles D. Gibson, Chief of the School Planning Bureau of the California State Department of Education, summarizes the issue of uniform school construction plans well in the following statement:

> "The most fundamental argument against stock plans is that we have not yet built a school of such excellence that it is worth building twice. No school to date reflects accurately what we already know about teaching and learning, nor do we have a single school building which utilizes fully the best products which manufacturers have on the market now. The technical knowledge available to achieve the highest performance in any area of space flexibility, lighting, climate control, acoustics,

building erection and the engineering of materials, has not yet been applied to any school building in California."

The evidence coming before the Council generally tends to minimize the cost savings afforded through the use of stock school plans while pointing out several major disadvantages. The possible threat of such a project to local educational programs, the experiences of states having used standard plans, and the initial cost of plan design were major considerations in the Council's decision to reject such a proposal for Montana at this time.

The foregoing is not meant to imply that the Council finds economical school construction to be an unachievable goal in Montana. On the contrary, items were discussed in the conduct of this study which have a distinct bearing on the issues set out in House Joint Resolution No. 50. These points will be discussed in Part II of this report which analyzes the statutory and administrative framework within which the public school construction process operates in Montana.

PART II
THE SCHOOL CONSTRUCTION PROCESS IN MONTANA

Summary

As evidenced in Part I of this report, the historical use of uniform school construction plans has gained its impetus from an attempt by states to help small rural school districts provide low-cost educational facilities. While uniform plans have not been successful in meeting this objective, some good has come out of the effort in the adoption of alternative school construction techniques and an awareness of the relationship between educational facilities and the educational programs which they house. In Montana, this technological "fallout" is available only to about one percent (1%) of all districts due to the inability of most small schools to afford full-time construction expertise on their administrative staffs.

Little empirical data on the historic costs of Montana school construction is available. Many districts do not reflect original bonding estimates, actual construction costs, or remodeling expenses on summary financial statements. Accounting data available to the Council was found to be incomplete for analytical purposes. Likewise, a questionnaire mailed to school officials requesting information on their plans for future construction projects failed due to a reluctance on the part of many officials to announce major projects prior to holding bond elections. Consequently, the bulk of information presented in this section was derived through secondary sources and testimony from state officials, school board members, superintendents, architects, engineers and private contractors.

During the course of this study, the Council was advised of numerous deficiencies in existing school buildings which were the sources of major expenditures for repairs and maintenance. In addition, some such defects presented a constant hazard to the safety of students. Perhaps the problem is best summarized in the following statement given to the Council by Mr. Paul T. O'Hare, Past President of the Montana Association of School Administrators and Superintendent of School District No. 2, Billings:

> "Some problems which stem from original design and construction in our area are roofs and roofing systems, poorly designed, inadequate engineering systems and alternate structural design substitutions agreed upon between architect and contractor without the owner's knowledge. There is also the matter of proper inspection and responsibility when specifications are not followed.
>
> "Our experience with level roofs has been that they are improperly designed and poorly constructed with drains invariably located in high spots. Builders and architects blame each other, but we are stuck

with the resultant problems of leaks, soggy insulation and building deterioration."

If design and maintenance problems exist in the state's largest school district, which has a construction supervisor on its staff, surely similar problems confront the other 739 school districts operating in Montana.

In assessing this problem, the Council soon ruled out professional incompetency as its source. In the majority of cases, professional standards set by national associations of architects and engineers are strictly adhered to in the construction of public buildings throughout the state. In addition, stringent state licensing examinations require that architects registered to design public buildings in Montana be proficient in their trade. Moreover, school district officials cannot be blamed for approving structures which later reveal defects. The Council concluded in this regard that, regardless of class of district, the absolute control of building procedures or related costs seldom vests with the local school board or its administrative officials.

After having reviewed the obstacles to efficient, economical school construction in Montana, the Council considers three factors to be of major concern:

1. Most Montana school districts lack the educational facilities planning expertise required to formulate effective statements of school building needs.

2. The function of full-time, independent supervision of construction has been a proven concept for many years in other states, but is not practiced in Montana.

3. The present state review of school district construction plans does not include a determination of overall structural design.

In response to the above, the recommendations contained in this section are designed to:

1. Provide for the more efficient delivery of state services to school districts involved in the facility construction process.

2. Provide uniformity and flexibility in statutes regulating the construction of public works in Montana.

ALTERNATIVES TO THE USE OF UNIFORM BUILDING PLANS

Various alternative approaches available to school districts contemplating facility construction were examined by the Council during the conduct of this study. A summary of the major alternatives noted are presented here for the two-fold purpose of demonstrating the complexity of the school planning process which faces numerous Montana school board members as well as to serve as background for the subsequent discussions of the public school construction process now operating in Montana.

"Turnkey" Construction

"Turnkey" construction involves consolidation of the design and specification processes prior to the letting of contracts to build. A contractor develops his own proposed design utilizing the services of a staff architect or contracting with a private architect on a fee basis. A "package" bid containing preliminary drawings and estimated costs of materials and labor is then submitted for review by the school board.

The turnkey method is used primarily in federal projects, as a high degree of expertise is required to analyze the merits of various package proposals. However, the turnkey approach was utilized on a gymnasium addition project recently completed at Billings West High School, and savings of up to fifty percent (50%) on architectural and engineering fees were reported.

"Fast-Track" Construction

The "fast-track" method of building is most attractive from the standpoint of reducing construction time. Instead of the linear method traditionally used--that is design, award, construct--steps in the total process are overlapped or occur simultaneously. Certain costs become known in advance through pre-bidding, delivery time of materials is accelerated, and in brief the method allows the architect and owner better control over project costs and scheduling.

Systems Approach

The systems approach uses prefabricated building components designed to meet the individual user's specifications as to quality and performance. These components are organized into subsystems such as the structural subsystem, the heating, ventilating, air-conditioning, partitioning, and the lighting-ceiling subsystem.

All subsystems are designed so that they can be readily assembled on the construction site. They are also designed so that they can produce schools of widely varying size, shape, purpose, and design. A systems school is not a "little red box," as suggested

by some critics of prefabrication.

The systems concept is especially adaptable to multi-district cooperation in construction, as it allows bidding on specified subsystems to begin as soon as rough plans are drawn out. Regardless of the individual systems design selected by a particular school, subsystems for all participating districts may be bid at one time, which allows savings in money and time.

Use of Non-School Building Space

Non-school buildings can often be economically converted to school space. Depending on the condition of the building, the cost of providing usable space can be lower than new construction because there are no land and clearing costs.

A publicly-owned bathhouse in Boston was recently converted to a high school annex for 450 students at $11.00 per square foot, or about $1,400 per student. New high school space in Boston currently costs between $5,000 and $7,000 per student.

In other parts of the country, warehouses, factories and supermarkets are being converted into modern, open-space schools containing the latest in educational space utilization techniques.

Joint Occupancy

Under present methods of planning and building schools in Montana, the entire cost of a school, including interest on bonds, must be financed through local property taxes. Furthermore, the land used for schools is permanently removed from the county tax rolls, thus decreasing the local tax base.

To avoid this decrease in tax base, land and air space can be used jointly by a school and income-producing private enterprise such as housing, retail stores, or office space. The ideal arrangement is to include enough taxpayer commercial space to carry the cost or principal and interest on the school building bonds. The school then "pays for itself" from the increased tax base.

A joint occupancy arrangement would require some change in Montana law to allow for public-private ventures of this nature. Some Montana schools, however, are already leasing auditorium space to private groups, but the income from these rentals is minimal and has no effect on the local tax base.

Partnerships

A variation of joint occupancy is to combine schools and other public facilities into community-oriented multi-service centers. Public libraries, day-care centers, health facilities, community

colleges, job centers, welfare and social service agencies, cultural and recreational facilities, all mix well with schools. The shared use and joint construction can result in considerable savings in land and building costs and in much more productive use of the facilities.

Multi-District Cooperation

Economies in construction are possible when two or more schools in the same region engage in cooperative planning for new facilities. Too often planning for future growth is limited to a particular district and fails to recognize demographic trends affecting a much larger area.

Excluding the major school districts in Montana, such as District No. 1 in Great Falls and No. 2 in Billings, the vast majority of Montana's 740 school districts is limited in the professional and fiscal resources available to them for any capital outlay decisions, including educational equipment as well as the design and construction of school buildings.

It can be shown that almost all rural or semi-rural schools constructed in Montana in recent years are similar in design, structure, and utilization of modern educational construction techniques. It would seem logical to assume that any multi-district or statewide bidding on common materials could result in economies to local districts by obtaining quality merchandise at lower cost.

THE IMPORTANCE OF PRE-PLANNING

The typical Montana community plans a school building only once in a generation. The superintendents of community schools may have never taken part in a building program, nor any school board member.

However, as a need for new or additional facilities presents itself, the fact remains that most rural communities are poorly equipped to effectively deal with the basic planning required to meet these needs. Professional architects usually do not enter the planning process until a decision to build has been made and comprehensive educational statements concerning the proposed project have been formulated. It is during this "formulation" period when the Council finds a lack of adequate planning to have long-range effects on the final building product.

Too often a need for new facilities is obvious, and remodeling considerations are not warranted. In these cases, the planning process is frequently limited to a determination of the district's bonded indebtedness in order to estimate the amount available for construction. This figure is presented to an architect known by

a school official along with a directive to "build us the best possible school at the lowest possible cost." The procedure is the reverse of the one that an architect has been trained to follow. Such professionals have devoted their education and experience to designing structures based on the needs of their clients, with and without budgetary constraints.

Proper community pre-planning involves the efforts of laymen and experts directed towards answering basic questions such as:

1. What is the present population of the school and its community? What have been the trends in population over the past ten years and what trends are forecast for the future?

2. What are the population trends by age groups?

3. Where do present and prospective students live?

4. Are there unfilled community needs which could be incorporated into the new school, such as libraries, civic centers or meeting halls?

5. What studies have been conducted on the community by state planning and educational agencies?

6. What trends are evident in curriculum to be offered?

7. What future housing, industrial, or agricultural developments can be expected that will affect the school?

Only after these and other questions have been answered can a statement of educational needs be formulated for use by a professional architect. Another cost-related benefit from community-wide pre-planning is that the process leads to the construction of a versatile plant that can respond to unexpected changes in education or population without major additions or renovation. Of the 116 elementary and secondary construction projects completed in Montana between 1969 and 1971, 95 or 82% involved the additions or modifications to existing school buildings.

State education laws dictate types of construction in that the educational program must be housed in one of four basic plants: kindergarten, elementary (grades 1-8), junior high (grade 9), or senior high (grades 10-12). While curricula are usually patterned after these four categories, many districts have successfully combined two or more programs within one building.

In about 45 states outside Montana, local school districts have benefited greatly through the contracted services of an

educational consultant hired to prepare educational need statements. In some states this service is provided through a state agency, either on a fee basis or without charge; in others it is a private endeavor.

The professional educational consultant usually has a broad background in the field of education and a working knowledge of contemporary teaching practices, curriculum content, and the range of services which the school should provide. He may have had teaching and administrative experience in the public school system.

In states having this service available, the educational consultant is usually employed by some board, committee or individual of the city or town which is contemplating the construction of a new school. The scope of services provided by the educational consultant varies. Most often, he gathers data and makes projections which relate to future school needs, including population studies, pupil enrollment, land usage, and adequacy of the existing school plant. He views available school sites and makes recommendations in order of priority. On the basis of this information he works out a written schedule of instructional and ancillary spaces, using nationally accepted standards. He also describes the purposes of the activities proposed for each space unit, as an aid to the architect. The above material is incorporated into a set of educational specifications which serve as a basis for architectural design specifications.

The Council finds that a number of individuals meeting the qualifications of an educational consultant is currently employed by the state. The Office of the Superintendent of Public Instruction presently administers a broad range of programs coordinating various local school district functions; however, the expertise of this office is not formally available to local districts considering new facilities or additions. An individual serving as educational consultant would not have to be an architect or engineer; it is possible that this service could be provided by the Office of the Superintendent of Public Instruction without requiring the employment of additional personnel.

The Council recommends that the Superintendent of Public Instruction investigate means of providing an educational consultant service to elementary and secondary school districts in Montana. Such investigation should include determinations as to how this construction planning service could be incorporated within the present organization of the Office of the Superintendent of Public Instruction as well as to whether or not such a service could be self-supporting.

THE SUPERVISION OF PUBLIC SCHOOL CONSTRUCTION

Once a comprehensive statement of educational needs is developed to the satisfaction of local school officials, the board is ready to utilize the services of a professional architect in translating these needs into a structure to house the educational program. The Council found that, in some cases, school boards do not devote proper time to "shopping" for the right architect to do the work required. Most all of the 35 architectural firms doing business in Montana are willing to meet with any school board who requests an interview at no charge to the district. Many of these firms will provide tours of schools previously designed by them, again at no charge. Perhaps most important, prospective architects will volunteer their time to review and make recommendations on the school's formal statement of educational needs, if such a statement is available. The Council finds that adequate time spent in interviewing and hiring professional architects can lead to economies in construction and prevent future conflicts over project objectives.

Aside from designing a school building which is acceptable to school officials, the architect has two major functions as follows:

1. To assist in the preparation of the required bidding forms, plans and specifications, and to advise the board in evaluating bids received.

2. To provide general supervision to protect the school board against defective work by contractors and sub-contractors. As a rule, the architect shares his full time among various buildings in different stages of construction.

According to the practice of his profession and established legal and governmental procedure, the architect does not guarantee the performance of contractors and sub-contractors. The continuous, full-time supervision in detail of construction activity on school buildings is an obligation of the local school board and/or its superintendent.

Some Montana architectural firms will provide full-time supervision of a school construction project at the district's expense; however, they are reluctant to do so when a project is located far from their home offices. Of the 352 professional architects doing business in Montana, only 160 or 45% are state residents.

The foregoing is not intended to imply that Montana's architectural community has been derelict in fulfilling their inspection responsibilities to school districts. The point is merely that full-time inspection of construction is <u>not</u> a responsibility of the architect and that even by paying an added fee for additional inspection, the owner-district is not protected from subsequent expense and litigation arising from defects in design or

construction.

To fill the need for independent full-time inspection of construction, many out-of-state school districts utilize the services of a professional "clerk-of-the-works." The clerk-of-the-works, variously known as "construction supervisor", "resident inspector" or "resident engineer", plays a most important role in the protection of the public interest in the construction of schools or other public buildings. Basically, his job is to hold the contractor to the plans and specifications developed by the architect and approved by the school board. His reputation depends on his competence and his capacity to protect the person for whom the project is being built. The duties of clerks-of-the-works vary, but primarily they examine materials and workmanship, verify lines and levels, measure work departures from the contract, and promptly report all irregularities to the architect. At the close of each month the clerk-of-the-works measures and computes the material incorporated into the building. This done, the monthly applications for payment are quickly adjusted and extravagent guesswork is avoided.

The importance of a clerk-of-the-works was discussed as follows in a 1958 report by the Massachusetts Legislative Research Council on construction methods and costs:

> "This continuous inspection is especially important for the pouring of concrete foundations, walls and floors, the replacement of reinforcing steel, the laying of brick and block and all other processes where improper workmanship and materials can be concealed in such manner as to prevent subsequent detection."

The losses likely to be suffered if a public building project proceeds without a qualified clerk-of-the-works were described as follows:

> "In such circumstances a contractor working under a lump sum contract is inevitably tempted to cut many corners during the course of construction; further, he is invited to take his chances as low bidder with knowledge that, in the absence of adequate supervision, he can probably add to the contractor's profit from change-order requests approved while the project is going along. Sometimes the designer too is an indirect beneficiary of these circumstances, since he is not required to give the project the same supervisory time and attention demanded for the same fee in the case of private projects on which a competent clerk-of-the-works is employed and the supervision is exacting.
>
> "It is impossible to estimate precisely the damage done . . . by . . . inspection deficiencies. The price of poor construction and non-adherence to

plans and specifications is later paid for in excessive maintenance budgets over the course of years. This is an undisputed assumption of construction engineering. In addition, of course, when corners are cut, the cost of the project does not truly reflect the value received. . . ."

One can only speculate as to why a service such as provided by a clerk-of-the-works is not in evidence in Montana. Aside from the fact that the overall volume of public construction is greater in other states, it would appear that the standard one percent (1%) fee for this service, when applied to the approximate $110,000,000 expended on public projects in Montana during 1970, would attract retired architects, engineers or contractors into the field. Testimony from Montana architects and school officials indicated a need for on-site inspections over and above those required in standard architectural contracts.

The Architecture and Engineering Division of the Montana Department of Administration presently employs three construction supervisors whose responsibilities include the full-time supervision of state-owned construction projects. There is evidence that this independent inspection may have saved the state many times the salaries paid these individuals through their discovery of design and construction irregularities during the construction of state buildings.

The Council recommends that the 43rd Legislative Assembly instruct the Department of Administration to devise a method of independent, full-time inspection of Montana's public school construction and other municipal construction projects.
(Appendix A)

STATE REVIEW OF PUBLIC SCHOOL CONSTRUCTION PLANS

The statutory responsibility for reviewing school sites and construction plans is presently shared by four agencies: the Department of Health & Environmental Sciences, the Office of the Superintendent of Public Instruction, the State Fire Marshal's Office and the Building Code Council.

In supplementing its statutory responsibilities, the Department of Health and Environmental Sciences has developed regulations to:

". . . assist the school administrator with the sanitary maintenance of his school. The principal factors contained in a clean, wholesome and satisfactory school environment are: adequate, usable topographically suitable grounds; functional buildings; an adequate and safe water supply with dispensing

facilities; safe sewage disposal devices; adequate toilet facilities; every reasonable provision for the practice of personal hygiene; proper ventilation; the maintenance of a healthy school room temperature; comfortable classrooms; seating facilities adjusted to the postural needs of pupils and provision of a clean food supply. Attractive school surroundings, free from physical hazard, and the maintenance of an effective janitorial service to assure the pupils of the proper esthetic comfort are also important." (School Environment Regulations of the Montana State Board of Health, 1963)

Likewise, the State Fire Marshal reviews school plans for compliance with the Life Safety Code promulgated by the National Fire Protection Association. The Office of the Superintendent of Public Instruction relies primarily on plan reviews by the Department of Health and Environmental Sciences and the Fire Marshal for adherance to its regulations regarding health and safety in public school buildings. The Office of the Superintendent of Public Instruction is also involved with the school construction process in that any public school must comply with general accreditation standards. These standards consist of general statements stressing the adequacy of site and plant in relation to the number of pupils enrolled.

Many out-dated agency regulations concern items in building construction which are basic considerations within the architecture and engineering professions, or are fundamental to conscientious school maintenance personnel. The Council questions the necessity of this fragmented review of school construction plans under these circumstances. The present multi-agency review of plans for compliance with minimum standards causes costly delays in the construction of needed educational facilities solely in the transferal of plans between agencies. Other factors leading to the Council's conclusion include:

1. At no point in the current plan review process is the entire school building viewed for its structural soundness or for the adequacy of its design.

2. Many agency regulations have been superseded by uniform building and safety codes recognized in all state building trades.

3. None of the agencies currently involved in the plan review process feel that they possess the funds required to update or enforce compliance with their individual regulations.

4. Some agency regulations are in conflict with each other, requiring mediation by professionals or other agencies.

5. In recent years, the responsibility for approving site selections for public buildings in Montana has been transferred from the state to local zoning boards.

The Council concludes that the responsibility for school plan reviews should be centralized within an agency oriented toward comprehensive building design while knowledgeable of codes and building practices aimed at protecting public health and safety.

The Architecture and Engineering Division of the State Department of Administration would appear to be the agency best qualified to review school plans. The Architecture and Engineering Division's staff consists of individuals experienced in plan review. In addition, the Director of the Architecture and Engineering Division currently utilizes inspectors employed by other agencies such as the Plumbing Board, State Electrical Board, State Fire Marshal and the State Department of Health and Environmental Sciences to enforce health and safety codes adopted by the Building Code Council.

The Legislative Council is of the opinion that a statutory shift of administrative responsibility may be accomplished without creating a need for additional agency funding. If the following recommendation is adopted, it is assumed that agencies previously involved with the review of elementary and secondary school plans will delete this program from subsequent budget requests.

The Council recommends that the responsibility for review of elementary and secondary school construction plans be centralized within the Architecture and Engineering Division of the State Department of Administration.

It further recommends that statutes be amended deleting the State Fire Marshal, the Superintendent of Public Instruction and the Board of Health's responsibilities in this area.
(Appendix B)

OTHER STATUTORY PROVISIONS AFFECTING PUBLIC SCHOOL CONSTRUCTION

State Building Code Council

The Legislative Council, in its 1968 report on Building Standards, recognized a jurisdictional proliferation of state and local building regulations and recommended the creation of a State Building Code Council as a means of coordinating the various state and municipal building standards then in effect.

As adopted by the 1969 legislative assembly, the powers, duties and organization of the State Building Code Council are enumerated

in Title 69, Chapter 21, R.C.M. 1947. According to Section 69-2104, R.C.M. 1947, the Council was established to "guarantee that building codes be adopted in Montana and enforced to protect the health and safety of the residents of the state." The law provides that the codes should allow buildings to be constructed at the least possible cost consistent with recognized standards of health, safety and fire prevention and thereby provide basic and uniform performance standards. The Building Code Council is also mandated to "eliminate restrictive, obsolete, conflicting and unnecessary building regulations and requirements which increase (construction costs) on projects built with public funds."

The Building Code Council is composed of nine members, five of which are gubernatorial appointees. The members appointed are: a licensed architect, a professional engineer, a building contractor, a municipal building inspector, and one layman not engaged in any of the foregoing occupations. The other four members are respresentatives of the Department of Health and Environmental Sciences, the State Electrical Board, the Board of Plumbing Examiners, and the State Fire Marshal.

The Building Code Council adopts nationally recognized building codes but does not draft codes of its own. To date it has adopted five uniform codes, including the Uniform Mobile Housing Code, Recreational Vehicle Code, One & Two Family Dwelling Code, National Electrical Code, and the Uniform Mechanical Code. Hearings have been scheduled to consider four additional uniform codes.

The enabling legislation placed the Building Code Council under the responsibility of the State Department of Administration. Organizationally, the function became a responsibility of that Department's Architecture and Engineering Division. Under Executive Reorganization, the Building Code Council was abolished and its functions tranferred to the Department of Law Enforcement and Public Safety under the direction of the State Attorney General. According to recommendations by the Commission on Executive Reorganization, this transfer was necessitated due to the fact that "the adoption of a state building code is certainly a public safety function and the enforcement of a state building code logically belongs within a Department of Law Enforcement."

The Council feels that this administrative transfer ignores the fact that the Building Code Council, having actively researched certain codes for less than two years, is only now beginning to adopt certain uniform codes by reference. The major purpose of the Building Code Council, as enacted into law, is to utilize the expertise of technicians in the various building trades in arriving at uniform, flexible codes which will be adhered to by tradesmen. Once adopted, a well-written code tends to be self-enforcing, requiring a minimal expenditure of public funds to assure adherence.

The legislative intent in placing the Building Code Council under the jurisdiction of the Department of Administration appears sound in that the Architecture and Engineering Division of that department

is involved daily with the problems of efficient building design and construction. The State Architect and his staff are conversant with the provisions of National Building Codes and have developed a network of communication with municipal building inspectors who enforce building codes at the local level.

> *The Council recommends that the organization and functions of the Building Code Council be retained organizationally within the State Department of Administration.* (Appendix C)

Public Contract Requirements

In researching state law affecting the construction of public schools in Montana, the Council noted a lack of continuity among many statutes regulating public construction within the state. For example, the codes relating to intra-agency construction projects differ as to bidding, bonding and plan review requirements. It would appear that the legislative intent behind statutes regulating public construction is jeopardized by these differing statements of policy.

> *The Council recommends that all Montana codes dealing with the bidding, bonding, and plan reviews of public works projects constructed within the state be substantively recodified.*

At the local level, bidding requirements vary between school districts and municipalities of comparable size. For example, Section 11-1202, R.C.M. 1947, was amended in the 1971 legislative session to allow municipal contracts in amounts under $4,000 to be let without benefit of competitive bid. This provision governs all classes of cities and towns. First and second class school districts, on the other hand, are held to a maximum of $2,500 when letting similar contracts. Maximum amounts are $1,500 for third class districts and $800 for smaller schools.

Variable standards such as these appear to be unrealistic in comparison to the volume of transactions administered by school boards as against their counterparts on city and town councils. The following table compares the 1971 general fund expenditures of first class school districts and municipalities.

TABLE 2

COMPARISON OF GENERAL FUND EXPENDITURES
SELECTED 1st CLASS CITIES & SCHOOL DISTRICTS
July 1, 1970 through June 30, 1971

City (School District No.)		Annual General Fund Expenditures* City	School District
Great Falls	(1)	$ 2,389,070	$ 13,435,978
Anaconda	(10)	$ 414,471	$ 1,943,612
Havre	(16)	$ 343,586	$ 2,171,925

*Figures for operating expenditures only, net of investment transactions. Source: State Department of Business Regulation.

While the cities in which second and third class school districts are situated are not comparable by class, average general fund expenditures for each during fiscal 1971 were as follows:

2nd Class Cities - $ 232,133
2nd Class Schools - $ 401,860

3rd Class Cities - $ 70,374
3rd Class Schools - $ 162,550

In light of the volume of business transacted by all classes of school districts in the state, the Council feels that schools should be afforded the same flexibility in their contractural relationships as are municipalities of similar size.

The Council recommends that all classes of school districts be allowed to enter into contracts in amounts not exceeding $4,000 without first obtaining formal advertised bids. (Appendix D)

Professional Liability Insurance

While the knowledge and ability of architects and engineers has grown dramatically over the years, these professionals are still capable of error in their work. When such errors result in injury or damage to others, the architect or engineer is exposed to legal liability. Insurance coverage for professional architects and engineers has been available nationwide since 1956, and since that time over 15,000 claims have been filed, about 5,500 of which are currently open and pending. Continental Casualty Company, the only major underwriter of architects and engineers, reports that new claims are being filed at the rate of 150 per month. As a

result of the increasing number of claims filed, premiums for this coverage are also being raised.

Section 66-114, R.C.M. 1947, requires that "all architects have an adequate errors and omissions insurance policy when performing any supervisory acts relating to the construction of public works of the State of Montana or any of its political subdivisions." This insurance is required to remain in force for three years after the completion of construction.

The Council makes the following observations with regard to Section 66-114, R.C.M. 1947:

1. While a large number of professional engineers presently obtain liability coverage, only architects are required by law to do so.

2. In the absence of any administrative rules to the contrary, a determination of what constitutes "adequate" errors and omissions coverage for specific state projects is left to judicial interpretation. As the minimum liability coverage under an errors and omissions policy is $250,000, it is possible that this type of policy is not needed on minor projects, where the requirement merely adds to total construction costs.

3. Errors and omissions liability insurance is but one of a number of plans written for professional construction specialties.

4. The term "supervisory acts" has been interpreted by courts as not including the contractural responsibilities of architects and engineers during the planning and design phases of construction. The courts have similarly ruled that "reasonable supervision" does not require the full-time inspection of construction projects contracted by architects and engineers.

Correspondence between the Council and Continental Casualty Company revealed that, to their knowledge, no other state requires errors and omissions insurance coverage by statute. Administrative agencies of many states require that design professionals have professional liability insurance as a condition precedent to the award of a design contract where state funds are involved.

The Council recomends that Section 66-114, R.C.M. 1947, be amended to require that all architects and engineers carry professional liability insurance when performing services on any state construction project. The terms and amounts of such liability coverage is to be determined by the State Department of Administration. (Appendix E)

APPENDIX A

_____ BILL NO. _____

INTRODUCED BY_____

82-3314, 82-3317

A BILL FOR AN ACT ENTITLED: "AN ACT TO AMEND SECTIONS 82-3314 AND 82-3317, R.C.M. 1947, TO REQUIRE THE DEPARTMENT OF ADMINISTRATION TO PROVIDE FOR THE INDEPENDENT FULL-TIME INSPECTION OF MONTANA'S PUBLIC SCHOOL AND MUNICIPAL CONSTRUCTION PROJECTS."

BE IT ENACTED BY THE LEGISLATIVE ASSEMBLY OF THE STATE OF MONTANA:

Section 1. Section 82-3314, R.C.M. 1947, is amended to read as follows:

"82-3314. Definitions of building and construction. In sections 82-3315 to 82-3321, with the exception of 82-3317(2),

(1) "Building" includes:

(a) A building, facility or structure constructed or purchased wholly or in part with state moneys.

(b) A building, facility or structure at a state institution.

(c) A building, facility or structure owned or to be owned by a state agency, including the state highway commission.

(2) "Building" does not include:

(a) A building, facility or structure owned or to be owned by a county, city, town, school district, or special improvement district.

(b) A facility or structure used as a component part of a highway or water conservation project.

(3) "Construction" includes construction, repair, alteration, and equipping and furnishing during construction, repair, or alteration."

Section 2. Section 82-3317, R.C.M. 1947, is amended to read as follows:

"82-3317. Supervision of construction of buildings. (1) For the construction of a building costing more than ten thousand

dollars ($10,000.00) the state controller shall:

(a) Review and approve all plans and working drawings prepared by architects.

(b) Approve all bond issues or other financial arrangements and supervise and approve the expenditure of all moneys.

(c) Under the supervision and with the approval of the board of examiners, solicit, accept and reject bids and award all contracts to the lowest qualified bidder.

(d) Review and, with the consent of the board of examiners, approve all change orders.

(e) Accept the building when completed according to approved plans and specifications.

(f) Concur in construction projects where the proposed cost is less than ten thousand dollars ($10,000.00), but more than three thousand dollars ($3,000.00), provided that before any contract is approved for construction, alteration or improvement no less than three (3) separate informal bids shall be procured from bona fide contractors duly licensed as such in the state of Montana.

(g) Not require the provisions of Montana law relating to advertising, bidding or supervision where proposed construction costs are less than three thousand dollars ($3,000.00).

(2) For the construction of buildings, facilities or structures owned or to be owned by a county, city, town, school district or special improvement district costing more than one hundred thousand dollars ($100,000.00), the department of administration shall make available a means for the independent full-time inspection of the construction of such buildings. "Construction" shall include construction, repair, alteration, and equipping and furnishing during construction, repair or alteration.

~~(2)~~(3) It is the intent of the legislative assembly that student housing and other facilities constructed under the authority of the regents of the university of Montana are subject to the provisions of subsection (1) of this section."

APPENDIX B

_____ BILL NO. _____

INTRODUCED BY_____

75-8203, 75-8206, 75-8207, 75-8208

A BILL FOR AN ACT ENTITLED: "AN ACT TO AMEND SECTIONS 75-8203, 75-8206, 75-8207 AND 75-8208, R.C.M. 1947, RELATING TO THE STATE REVIEW OF ELEMENTARY AND SECONDARY SCHOOL CONSTRUCTION PLANS."

BE IT ENACTED BY THE LEGISLATIVE ASSEMBLY OF THE STATE OF MONTANA:

Section 1. Section 75-8203, R.C.M. 1947, is amended to read as follows:

"75-8203. Selection of school sites, approval election, and lease of state lands. The trustees of any district shall have the authority to select the sites for school buildings or for other school purposes but such selection shall first be approved by the qualified electors of the district before any contract for the purchase of such site is entered into by the trustees, except the trustees shall have the authority to purchase or otherwise acquire property continguous to an existing site that is in use for school purposes without a site approval election. Furthermore, the trustees may take an option on a site prior to the site approval election.

The election for the approval of a site shall be called under the provisions of section 75-6406 and shall be conducted in the manner prescribed by this Title for school elections. An elector who may vote at a school site election shall be qualified to vote under the provisions of section 75-6410. If a majority of those voting at the election approve the site selection, the trustees shall have the authority to purchase such sites. A site approval election shall not be required when the site was specifically identified in an election at which an additional levy or the issuance of bonds was approved for the purchase of such site.

Any site for a school building or other building of the district that is selected or purchased by the trustees shall:

(1) be in a place that is convenient, accessible and suitable;

(2) comply with the minimum size and other requirements prescribed by the ~~board of health~~ department of administration of the state of Montana; and

(3) comply with the state-wide building regulations, if any, promulgated by the state building code council.

The state board of land commissioners shall have the authority to sell, at the appraised value, or to lease for any period of time less than ninety-nine (99) years, at an amount of one dollar ($1) per year, to a district any tract of state land of not more than ten (10) acres to be used as a school site in such district."

Section 2. Section 75-8206, R.C.M. 1947, is amended to read as follows:

"75-8206. Review and approval of school building plans and specifications. No school building in the state, either publicly or privately owned or operated, shall be built, enlarged, remodeled, or repaired until the plans and specifications for such construction have been submitted to the state ~~board-of-health-and-the-state-fire-marshal~~ department of administration, and such public ~~agencies-have~~ agency has endorsed ~~their~~ its approval on such plans and specifications. The plans and specifications shall show in detail the proposed construction of the building and shall illustrate and indicate conformity with the regulations of the ~~board-of-health-and-of-the-state-fire-marshal~~ department of administration. The plans and specifications shall be prepared in accordance with the regulations of the ~~board-of-health-of-the-state-of-Montana,-the-regulations-of-the-Montana-state-fire-marshal~~ department of administration, and the building code promulgated by the state building code council.

~~As-a-service-to-districts,-the-superintendent-of-public-instruction-shall-review-the-plans-and-specifications-submitted-to-the-board-of-health-to-assist-the-districts-in-designing-facilities-for-optimum-utilization.~~"

Section 3. Section 75-8207, R.C.M. 1947, is amended to read as follows:

"75-8207. Regulations of ~~board-of-health~~ department of administration. The state ~~board-of-health-shall~~ department of administration may adopt regulations prescribing the requirements for school sites, school buildings, ventilation, heating, lighting, water supply, sewage and waste disposal, and any other matters pertinent to the health and physical well-being of the pupils, teachers, and others who frequent schools. ~~Such-regulations-of-the-state-board-of-health-shall-require:~~

~~(1)--at-least-fifteen-(15)-square-feet-of-floor-space-and-two-hundred-(200)-cubic-feet-of-air-space-for-each-pupil-to-be-accommodated-in-each-classroom;~~

~~(2)--a-system-of-ventilation-which-shall-be-adequate-to-produce-satisfactory-conditions-of-air-in-all-rooms-of-the-building-at-all-times-and-under-all-conditions;~~

~~(3)--a-ventilation-system-of-fire-resistant-material-and construction;-and~~

~~(4)--a-system-of-lighting-all-parts-of-the-building-that-will produce-an-adequate-quality-and-quantity-of-illumination-at-all times.~~

~~The-state-board-of-health-shall-furnish-to-the-district copies-of-such-regulations.~~"

Section 4. Section 75-8208, R.C.M. 1947, is amended to read as follows:

"75-8208. School building plans and specifications approval before payment. The trustees of a district shall not make any payment under any contract for the construction of school facilities until the plans and specifications for such construction have been approved under the provisions of section 75-8206. Any contractor, architect, trustee, or other person, firm, or corporation who shall violate the provisions of section 75-8206, this section or any regulation promulgated by the state ~~board-of-health-or-the state-fire-marshal~~ department of administration shall be deemed guilty of a misdemeanor and, upon conviction, shall be punished by a fine of not less than one hundred dollars ($100) nor more than five hundred dollars ($500)."

APPENDIX C

_____ BILL NO. _____

INTRODUCED BY_____

82A-202, 82A-1202, 82A-1203

A BILL FOR AN ACT ENTITLED: "AN ACT TO AMEND SECTIONS 82A-202, 82A-1202 AND 82A-1203, R.C.M. 1947, TO PROVIDE FOR THE TRANSFER OF THE FUNCTIONS OF THE DEPARTMENT OF LAW ENFORCEMENT AND PUBLIC SAFETY PERTAINING TO THE STATE BUILDING CODE COUNCIL AND THE STATE BUILDING CODE TO THE DEPARTMENT OF ADMINISTRATION."

BE IT ENACTED BY THE LEGISLATIVE ASSEMBLY OF THE STATE OF MONTANA:

Section 1. Section 82A-202, R.C.M. 1947, is amended to read as follows:

"82A-202. Agencies abolished--functions transferred to department. (1) The department of administration and its units, created in Title 82, chapter 33, R.C.M. 1947, including the state purchasing department created in Title 82, chapter 19, R.C.M. 1947, are abolished, and their functions, except the functions contained in Title 69, chapter 21, R.C.M. 1947 (pertaining to building construction standards), transferred to the department of law enforcement and public safety in chapter 12 of this act, are transferred to the department of administration created in this chapter. Unless inconsistent with this act, any reference in the Revised Codes of Montana, 1947, to the department of administration or its units or the state purchasing department, except the references contained in Title 69, chapter 21, R.C.M. 1947, means the department of administration created in this chapter.

(2) The office of state controller, created in Title 82, chapter 1, R.C.M. 1947, the position of the state purchasing agent, created in Title 82, chapter 19, R.C.M. 1947, and the position of budget director, created in Title 79, chapter 10, R.C.M. 1947, are abolished, and their functions, except the functions contained in Title 69, chapter 21, R.C.M. 1947 (pertaining to building construction standards), transferred to the department of law enforcement and public safety in chapter 12 of this act, are transferred to the department. Unless inconsistent with this act, any reference in the Revised Codes of Montana, 1947, to the state controller, state purchasing agent, or budget director, except the references contained in Title 69, chapter 21, R.C.M. 1947, means the department of administration created in this chapter.

(3) The state board of review, created in Title 79, chapter 24, R.C.M. 1947, is abolished, and its functions are transferred to the department. Unless inconsistent with this act, any reference in the Revised Codes of Montana, 1947, to the state board of review means the department of administration created in this chapter.

(4) The Montana highway patrolmen's retirement board, created in Title 31, chapter 2, R.C.M. 1947, is abolished, and its functions, except the quasi-judicial functions transferred to the board of administration in section 82A-211 of this chapter, are transferred to the department. Unless inconsistent with this act, any reference in the Revised Codes of Montana, 1947, to the Montana highway patrolmen's retirement board except the references relating to the quasi-judicial functions transferred to the board of administration in section 82A-211 of this chapter, means the department of administration created in this chapter.

(5) The functions of the department of law enforcement and public safety pertaining to the former state building code council and the state building code of Title 69, chapter 21, R.C.M. 1947, are transferred to the department of administration. Unless inconsistent with this act, any reference in Title 69, chapter 21, R.C.M. 1947, to the department of law enforcement and public safety means the department of administration."

Section 2. Section 82A-1202, R.C.M. 1947, is amended to read as follows:

"82A-1202. Agencies abolished--functions transferred to department. (1) The state bureau of criminal identification and investigation, provided for in Title 80, chapter 20, R.C.M. 1947, is abolished, and its statutory functions are transferred to the department. Unless inconsistent with this act, any reference in the Revised Codes of Montana, 1947, to the state bureau of criminal identification and investigation means the department of law enforcement and public safety.

(2) The position of criminal investigator created within the office of the attorney general in Title 82, chapter 4, R.C.M. 1947, is abolished, and the functions of the position are transferred to the department. Unless inconsistent with this act, any reference in the Revised Codes of Montana, 1947, to the position of criminal investigator means the department of law enforcement and public safety.

(3) The state law enforcement teletypewriter communications committee, provided for in Title 82, chapter 39, R.C.M. 1947, is abolished, and its functions are transferred to the department. Unless inconsistent with this act, any reference in the Revised Codes of Montana, 1947, to the law enforcement teletypewriter communications committee means the department of law enforcement and public safety.

(4) The Montana law enforcement academy advisory board, provided for in Title 75, chapter 52, R.C.M. 1947, is abolished, and

its functions are transferred to the department. Unless inconsistent with this act, any reference in the Revised Codes of Montana, 1947, to the Montana law enforcement academy advisory board means the department of law enforcement and public safety.

(5) The office of state fire marshal, created in Title 82, chapter 12, R.C.M. 1947, is abolished, and its functions are transferred to the department. Unless inconsistent with this act, any reference in the Revised Codes of Montana, 1947, to the office of state fire marshal means the department of law enforcement and public safety.

~~(6)--The state building code council, created in Title 69, chapter 21, R.C.M. 1947, is abolished, and its fuctions are transferred to the department. --Unless inconsistent with this act, any reference in the Revised Codes of Montana, 1947, to the state building code council means the department of law enforcement and public safety.~~"

Section 3. Section 82A-1203, R.C.M. 1947, is amended to read as follows:

"82A-1203. Additional functions transferred to department. (1) The functions of the state electrical board of making inspections of electrical installations and issuing tags and charging fees therefor in section 66-2805(c)(i), R.C.M. 1947, and of establishing an electrical code in section 66-2802(i), R.C.M. 1947, are transferred to the department. Unless inconsistent with this act, any reference in the Revised Codes of Montana, 1947, to the state electrical board relating to its functions of making inspections of electrical installations and issuing tags and charging fees therefor or of establishing an electrical code means the department of law enforcement and public safety.

~~(2)--The functions of the state controller and the department of administration, which are contained in Title 69, chapter 21, R.C.M. 1947 (pertaining to the state building code), are transferred to the department. --Unless inconsistent with this act, any reference in Title 69, chapter 21, R.C.M. 1947, to the state controller or the department of administration means the department of law enforcement and public safety.~~

~~(3)~~(2) The function of the secretary of state of registering machine guns in section 94-3108, R.C.M. 1947, is transferred to the department. Unless inconsistent with this act, any reference in the Revised Codes of Montana, 1947, to the secretary of state relating to his function of registering machine guns means the department of law enforcement and public safety."

APPENDIX D

_____BILL NO._____

INTRODUCED BY_____

75-6808

A BILL FOR AN ACT ENTITLED: "AN ACT TO AMEND SECTION 75-6808, R.C.M. 1947, RELATING TO THE LETTING OF CONTRACTS AND CALLING FOR BIDS BY SCHOOL DISTRICT TRUSTEES."

BE IT ENACTED BY THE LEGISLATIVE ASSEMBLY OF THE STATE OF MONTANA:

Section 1. Section 75-6808, R.C.M. 1947, is amended to read as follows:

"75-6808. Pecuniary interests, letting contracts and calling for bids, under certain circumstances. It shall be unlawful for any trustee to (1) have any pecuniary interest, either directly or indirectly, in the erection of any school building, or for warming, ventilating, furnishing, or repairing the same, or (2) be in any manner connected with the furnishing of supplies for the maintenance and operation of the schools, or (3) be employed in any capacity by the school district of which he is trustee.

The trustees of any district shall not let any contract for building, furnishing, repairing or other work for the benefit of the district, or purchasing supplies for the district for which must be paid a sum exceeding four thousand dollars ($4,000), without first advertising in a newspaper that will give notice to the largest number of people of the district as determined by the trustees for at least two (2) weeks, calling for bids to perform such work or to furnish such supplies~~,-except:~~.

~~(1)--the-trustees-of-a-third-class-district-only-maintaining elementary-schools-with-fewer-than-three-(3)-rooms-may-contract-for such-work-or-supplies-without-advertising-and-without-bids,-when the-amount-involved-is-less-than-eight-hundred-dollars-($800);~~

~~(2)--the-trustees-of-a-third-class-district,-other-than-those described-in-subsection-(1),-may-contract-for-such-work-or-supplies, without-advertising-and-without-bids,-when-the-amount-involved-is less-than-fifteen-hundred-dollars-($1,500);-and~~

~~(3)--the-trustees-of-a-second-class-district-or-a-first-class district-may-contract-for-such-work-or-supplies,-without-advertising~~

~~and without bids, when the amount involved is less than two thousand five hundred dollars ($2,500).~~

In all cases where bidding is required, the trustees shall award the contract to the lowest responsible bidder except that the trustees shall have the right to reject any or all bids.

With regard to contracting for work or supplies, the board of trustees of a community college district shall be subject to the provisions of section 75-8118."

APPENDIX E

_____BILL NO._____

INTRODUCED BY_____

66-114, 66-115

A BILL FOR AN ACT ENTITLED: "AN ACT TO AMEND SECTION 66-114, R.C.M. 1947, RELATING TO THE INSURANCE COVERAGE FOR ARCHITECTS ON PUBLIC BUILDINGS; AND REPEALING SECTION 66-115, R.C.M. 1947."

BE IT ENACTED BY THE LEGISLATIVE ASSEMBLY OF THE STATE OF MONTANA:

Section 1. Section 66-114, R.C.M. 1947, is amended to read as follows:

"66-114. Plans for public buildings to have seal and signature of architect--insurance coverage. All architectural plans and specifications for public buildings of the state of Montana, or any agency thereof, or of any county, city, or school district of the state, shall bear the seal and signature of the architect responsible therefor.

All architects and engineers shall have ~~an~~ a ~~adequate errors and omissions~~ liability insurance policy when performing any ~~supervisory acts~~ services relating to the construction of any public buildings, works or improvements of the state of Montana or any agency thereof, or of any county, city or school district of the state and such insurance shall be in force for three (3) years after the completion of the public buildings, works, or improvements. The amount and terms of such insurance shall be determined by the state department of administration."

Section 2. Section 66-115, R.C.M. 1947, is repealed.